

REMARKS

Objections to the Drawings

The Examiner objected to figures 1, 1A, 1B, 1C, and 2 because the signal vias had been mislabeled as 32B instead of 32C. Applicant has amended the drawings, and respectfully requests withdrawal of the objections to the figures.

Objections to the Specification

The Examiner objected to an informality on page 8, line 9 of the specification. Applicant has amended the specification to overcome the Examiner's objection, and respectfully requests withdrawal of the objection.

35 U.S.C. § 103 Rejections

The Examiner has rejected claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over Searls, et al. (U.S. Patent No. 6,730,860, hereinafter "Searls") in view of Zohar, et al. (U.S. Patent No. 6,754,551, hereinafter "Zohar").

With respect to Zohar, the Examiner states as follows on page 4 in the last paragraph:

"However Zahor et al. discloses the application of permanent and temporary (removable) solder resist (solder mask) in the manufacturing steps of printed circuit board; wherein the temporary and permanent solder masks are used to protect selected areas from certain interaction with solder alloy;

temporary masks are applied to keep solder alloy out of selected holes and also allow temperature or process-sensitive components to be added later, they are removed by peeling or by cleaning agents, while permanent solder masks are not removed after being applied (Zahor et al., column 4 lines 6 – 37; abstract and column 8, line 56 – column 9, line 52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modify the method of constructed the electronic assembly of Searls et al. by forming a removable solder mask on the plurality of conductive pads of the first surface, and a permanent solder mask on the first substrate in view of the teachings of Zohar et al in order to protect the selected areas from certain interaction with solder alloy or coming into contact with the solder alloy (Zohar et al., column 4 lines 6 – 37; abstract and column 8, line 56 – column 9, line 52)."

Zohar discloses a method of using a solder resist mask for purposes of wave-soldering as described in column 3, lines 23-38:

"Whilst etch resist masks protects the areas of the conducting paths during the above-mentioned etching step, the solder resist mask protects the conducting paths from being coated with solder during the soldering step. The soldering step commonly connects the components leads to predetermined positions in the conducting paths (commonly called lands or pads) by fixating the leads and the conducting paths, utilizing a molten metal alloy, which after solidifying, achieves a permanent electrically conductive bond. In mass production commonly wave-

soldering methods are utilized. In wave-soldering the PCB passages through a molten solder wave that coats the pads and leads and thus forms the required solder joints. The solder resist mask leaves only the pads uncovered that need to be covered by the molten solder, otherwise, also the conducting paths would be covered with the solder, causing several problems such as inter alia, short cuts by bridging solder”

In wave-soldering, molten solder is deposited over a solder resist mask and exposed portions in the solder resist mask. The solder resist mask is the removed and the solidified solder remains where the openings in the solder resist mask used to be. What should be noted is that the solder itself becomes the contact. This solder resist mask is a necessary requirement for purposes of defining where the contacts eventually should be.

What should be noted is that the solder resist mask is never used to assist in the attachment of balls. Beyond the use of the solder mask to define the eventual layout of the solder, there is no appreciation in Zohar for any other purpose, let alone for assisting in the placement of and maintaining a separation between solder balls.

Searls discloses the attachment of solder bars, but also fails to disclose the use of a mask for any purpose, let alone for the placement of balls.

The combination of references thus fail to teach or suggest that a mask can be used for placement of balls. Claim 1 includes limitations that solder balls are

attached to lands left in a solder mask. Claim 1 thus includes at least one limitation that is not suggested by Searls or Zohar, alone or in combination. Applicant therefore submits that claim 1 is patentable over the cited references.

Claims 2 and 3 depend from claim 1 and should be allowable for at least the same reasons as claim 1. Independent claim 4 includes similar limitations to claim 1. Claims 5-10 depend from claim 4 and should be allowable for at least the same reasons as claim 4. Claim 11 also includes limitations that are similar to the limitations of claim 1. Claims 12-15 depend from claim 11 and should be allowable for at least the same reasons as claim 11.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over Searls in view of Zohar.

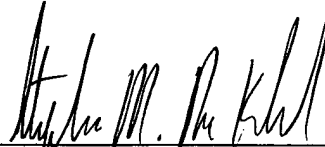
Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Stephen M. De Klerk at (408) 720-8300.

Please charge any shortages and credit any overages to Deposit Account No. 02-2666. Any necessary extension of time for response not already requested

is hereby requested. Please charge any corresponding fee to Deposit Account
No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP



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Stephen M. De Klerk
Reg. No. 46,503

12400 Wilshire Blvd.
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8300

IN THE DRAWINGS

Applicant submits substitute Sheets Nos. 1-4 containing Figures 1, 1A, 1B, 1C, 2, and 3 and reflecting corrections made to Figures 1, 1A, 1B, 1C, and 2.